

SEQUENCE LISTING

<110> Horvitz, H. Robert
Ranganathan, Rajesh

<120> CeSERT GENES, PROTEINS, AND MODULATORY
COMPOUNDS

<130> 01997/525002

<150> US 60/200,549

<151> 2000-04-26

<160> 11

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2016

<212> DNA

<213> Caenorhabditis elegans

<400> 1

```

atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
agcgggtgcag ctagcatgct gtccgcgccg gaatctcggc gtgtcagccg atcgatgagt 120
gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gcccctaaca 180
ctaaccgcat caacttcaca cagtattgat ccaaatgagc caatcgctgc tctcgggtgg 240
ctcacaccga caaaagaagg ccgagttgcc gcactgcgaa gacggagttc aatgggttcgt 300
gataaatggg caactaaaat ggaattccctg ttggccgctc ttggatatgc agttgatttg 360
ggtaatatat ggcgattccc atcagtatgc tacaacacg gtggcgggtgc ttttcttatt 420
ccatatttca ttatgttaat gatcggagga ctccccatgt tctatatgga acttgacttc 480
ggacaatttc atcgggtcagg atgtgttagt atatggagaa aggtgtgccc gttgtttcga 540
ggaatcgggt acggtatctg ctgtatttgc acgttcatag ccattttcta taatgcgata 600
atcgctcaag ccgtctattt tgctattgtt tcactttcaa aaatttgga ttccgaagtt 660
ccgtgggctg catgtggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720
acaatatcta gaaatgggac accattgacc actccgctcag aggaatatta tttatacaaa 780
gtccttgaag ttcaaaaatc aacaggattc gatgatcttg gaggtgtaaa aacttcaatg 840
gcagtgtgcc tactcgctgt atttataatg gtttactttg ctctttggaa ggggccacag 900
tcgtctggaa aaattgtttg ggtgactgca acagctccat atattattct aagtattctt 960
cttatacgtg gacttcttct tcctggagca aagaatggtc tctattatta tgtgacaccg 1020
gatttcgaga aactcaagga tcctgcagta tggtcggctg ctgctacaca gattttcttc 1080
tcacttggac caggattcgg ggtgctgctc gcgctgagca gttacaatga ttttaacaat 1140
aactgctatc gtgacgccgt cactatctcc atcattaact gtgccacgtc attcttttcc 1200
ggatgtgttg tattctctac acttggtctat atgtctcttc tcaccaataa accgattaat 1260
gaggtagttg gagaacacga cgcctctcta atcttcatcg tctaccccca agccctcgca 1320
acaatggatt acagttgttt ctggtctttc atctttttcg tcatgctaata cactcttgga 1380
atcgactcca cttttgctgg aatcgaagca tttatcacgg gattctgtga tgagtcgagg 1440
tttttgctga aaaatcgaaa atgggtcgtg ctggtcattt gcatcattta ttacttcttc 1500
agctttcccg ctatcagcta tgggtggtcaa ttcgtgatcc cgttcctgga tgaatatgga 1560
gtttctctat cagttctgtt cattgtcacc tgcgaaatga ttgcagtctg ctggttttac 1620
gggtgttgatc agttctcaaa agatattcgt gctatgctgg gattctatcc tggaatttat 1680
tgagagagtct gctggacgtg ttctccggtt tttataagtg tgatattcat tatgactgtc 1740
tacaatagtt cgttcaagcc aattcaaatg gctagctaca ctttccctcg gtggagtggt 1800
attttggtgt gggtcctgag acttctctca gtccctcgaa ttccctgtct cgcaataatc 1860
tacctgctca gcggtaccgg cacactttac gaacgcttcc gatgggcaat aactcctcaa 1920
caacgccgaa attcggcgac ttctctcgcc gctgatccca cacaatttat cgatagttct 1980
cttttagatc caattcatac acttactcca gtttag 2016

```

09843596-042601

<210> 2
 <211> 2016
 <212> DNA
 <213> *Caenorhabditis elegans*

<400> 2
 atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
 agcgggtgcag ctagcatgct gtccgcgcca gaatctcggc gtgtcagccg atcgatgagt 120
 gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gcccctaaca 180
 ctaaccgtat caacttcaca cagtattgat ccaaatgagc caatcgctgc tctcgggtggt 240
 ctcacaccga caaaagaagg ccgagttgcc gcaactgcga gacggagttc aatgggttcgt 300
 gataaatggg caactaaaat ggaattccctg ttggccgtcg ttggatatgc agttgatttg 360
 ggtaatatat ggcgattccc atcagtatgc taaaaacacg gtggcgggtgc ttttcttatt 420
 ccatatttca ttatgttaat gatcggagga cttcccatgt tctatatgga acttgacttc 480
 ggacaatttc atcggtcagg atgtgttagt atatggagaa aggtgtgccc gttgtttcga 540
 ggaatcgggt acggtatctg ctgtatttgc acgttcatag ccattttcta taatgcgata 600
 atcgctcaag ccgtctattt tgctattgtt tcactttcaa aaatttgga ttccgaagtt 660
 ccgtgggcgt catgaggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720
 acaatatcta gaaatgggac accattgacc actccgtcag aggaatatta ttatacaaaa 780
 gtccttgaag ttcaaaaatc aacaggattc gatgatcttg gaggtgtaaa aacttcaatg 840
 gcagtgtgcc tactcgctgt atttataatg gtttactttg ctctttggaa ggggccacag 900
 tcgtctggaa aaattgtttg ggtgactgca acagctccat atattattct aagtattctt 960
 cttatacgtg gacttcttct tcctggagca aagaatggtc tctattatta tgtgacaccg 1020
 gatttcgaga aactcaagga tcctgcagta tggtcggctg ctgctacaca gattttcttc 1080
 tcacttggac caggattcgg ggtgctgctc gcgctgagca gttacaatga ttttaacaat 1140
 aactgctatc gtgacgcgt cactatctcc atcattaact gtgccacgtc attcttttcc 1200
 ggatgtgttg tattctctac acttggtctat atgtctcttc tcaccaataa accgattaat 1260
 gaggtagttg gagaacacga cgctctctca atcttcatcg tctaccccca agccctcgca 1320
 acaatggatt acagttgttt ctggtctttc atctttttcg tcatgctaata cactcttgga 1380
 atcgactcca cttttgctgg aatcgaagca tttatcacgg gattctgtga tgagtcgagg 1440
 tttttgtcga aaaatcgaaa atggttcgtg ctggtcattt gcatcattta ttacttcttc 1500
 agctttcccg ctatcagcta tgggtgtcaa ttcgtgatcc cgttcctgga tgaatatgga 1560
 gtttctctat cagttctgtt cattgtcacc tgcgaaatga ttgcagtctg ctgggtttac 1620
 ggtgttgatc agttctcaaa agatattcgt gctatgctgg gattctatcc tgggaattat 1680
 tggagagtct gctggacgtg ttctccggtt tttataagtg tgatattcat tatgactgtc 1740
 tacaatagtt cgttcaagcc aattcaaatg gctagctaca ctttccctcg gtggagtggt 1800
 attttgggtt ggttcctgag acttctctca gtccctcgaa ttccctgtct cgcaataatc 1860
 tacctgctca gcggtaccgg cacactttac gaacgcttcc gatgggcaat aactcctcaa 1920
 caacgccgaa attcggcgac ttctctcgcc gctgatccca cacaattat cgatagtctt 1980
 cttttagatc caattcatac acttactcca gtttag 2016

<210> 3
 <211> 2016
 <212> DNA
 <213> *Caenorhabditis elegans*

<400> 3
 atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
 agcgggtgcag ctagcatgct gtccgcgcca gaatctcggc gtgtcagccg atcgatgagt 120
 gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gcccctaaca 180
 ctaaccgtat caacttcaca cagtattgat ccaaatgagc caatcgctgc tctcgggtggt 240
 ctcacaccga caaaagaagg ccgagttgcc gcaactgcga gacggagttc aatgggttcgt 300
 gataaatggg caactaaaat ggaattccctg ttggccgtcg ttggatatgc agttgatttg 360
 ggtaatatat ggcgattccc atcagtatgc taaaaacacg gtggcgggtgc ttttcttatt 420
 ccatatttca ttatgttaat gatcggagga cttcccatgt tctatatgga acttgacttc 480
 ggacaatttc atcggtcagg atgtgttagt atatggagaa aggtgtgccc gttgtttcga 540
 ggaatcgggt acggtatctg ctgtatttgc acgttcatag ccattttcta taatgcgata 600
 atcgctcaag ccgtctattt tgctattgtt tcactttcaa aaatttgga ttccgaagtt 660
 ccgtgggcgt catgtggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720

acaatatcta	gaaatgggac	accattgacc	actccgctcag	aggaatatta	tttatacaaa	780
gtccttgaag	ttcaaaaatc	aacaggattc	gatgatcttg	gaggtgtaaa	aacttcaatg	840
gcagtggtgc	tactcgctgt	atttataatg	gtttactttg	ctctttggaa	gggtccacag	900
tcgtctggaa	aaattgtttg	ggtgactgca	acagctccat	atattattct	aagtattctt	960
cttatacgtg	gacttcttct	tcctggagca	aagaatggtc	tctattatta	tgtgacaccg	1020
gatttcgaga	aactcaagga	tcctgcagta	tggtcggctg	ctgctacaca	gattttcttc	1080
tcacttggac	caggattcgg	ggtgctgctc	gcgctgagca	gttacaatga	ttttaacaat	1140
aactgctatc	gtgacgccgt	cactatctcc	atcattaact	gtgccacgtc	attcttttcc	1200
ggatgtgttg	tattctctac	acttggctat	atgtctcttc	tcaccaataa	accgattaat	1260
gaggtagttg	gagaacacga	cgctctctta	atcttcatcg	tctaccccca	agccctcgca	1320
acaatggatt	acagttgttt	ctggtctttc	atctttttcg	tcatgcta	cactcttgga	1380
atcgactcca	cttttgctgg	aatcgaagca	tttatcacgg	gattctgtga	tgagtcgagg	1440
tttttgtcga	aaaatcgaaa	atggttcctg	ctggtcattt	gcatacattt	ttacttcttc	1500
agctttcccg	ctatcagcta	tggtgggtcaa	ttcgtgatcc	cgttcctgga	tgaatatgga	1560
ggttctctat	cagttctgtt	cattgtcacc	tgcgaaatga	ttgcagtctg	ctgggtttac	1620
ggtgttgatc	agttctcaaa	agatattcgt	gctatgctgg	gattctatcc	tggaaattat	1680
tggagagtct	gctggacgtg	ttcttcgggt	tttataagtg	tgatattcat	tatgactgtc	1740
tacaatagtt	cgttcaagcc	aattcaaatg	gctagctaca	ctttccctcg	gtggagtggt	1800
attttgggtt	ggttcctgag	acttctctca	gtcctcgcaa	ttcctgtctt	cgcaataatc	1860
tacctgctca	gcggtaccgg	cacactttac	gaacgcttcc	gatgggcaat	aactcctcaa	1920
caacgccgaa	attcggcgac	ttctctcgcc	gctgatccca	cacaaattat	cgatagttct	1980
cttttagatc	caattcatac	acttactcca	gttttag			2016

<210> 4
 <211> 1370
 <212> DNA
 <213> Caenorhabditis elegans

<400> 4						
atgctgcgtt	ggcattccgt	ccggaggaaa	cagcaccagc	agctgcaagc	tgaactctcc	60
agcgggtgcag	ctagcatgct	gtccgcgcga	gaatctcggc	gtgtcagccg	atcgatgagt	120
gttaaagata	caaagtcctt	gaagttcaaa	aatcaacagg	attcgatgat	cttgagggtg	180
taaaaacttc	aatggcagtg	tgccactctg	ctgtatttat	aatggtttac	tttgctcttt	240
ggaagggtcc	acagtcgtct	ggaaaaattg	tttgggtgac	tgcaacagct	ccatatatta	300
ttctaagtat	tttctttata	cgtggacttc	ttcttctctg	agcaaagaat	ggctctctatt	360
attatgtgac	accggatttc	gagaaactca	aggatcctgc	agtatggctg	gctgctgcta	420
cacagatttt	cttctcactt	ggaccaggat	tcgggggtgct	gctcgcgctg	agcagttaca	480
atgatttttaa	caataactgc	tatcgtgacg	ccgtcactat	ctccatcatt	aactgtgcca	540
cgtcattctt	ttccggatgt	gttggtattct	ctacacttgg	ctatatgtct	cttctcacca	600
ataaaccgat	taatgaggtg	gttgaggagc	acgacgcctc	tctaactctc	atcgtctacc	660
cccaagccct	cgcaacaatg	gattacagtt	gtttctggtc	tttcatcttt	ttcgtcatgc	720
taatcactct	tggaatcgac	tccacttttg	ctggaatcga	agcattttatc	acgggattct	780
gtgatgagtc	gaggtttttg	tcgaaaaatc	gaaaatgggt	cgtgctggtc	atttgcata	840
tttattactt	cctcagcttt	cccgtatca	gctatgggtg	tcaattcgtg	atcccgttcc	900
tggatgaata	tggagtttct	ctatcagttc	tggttcattgt	cacctgcgaa	atgattgcag	960
tctgctgggt	ttacgggtgt	gatcagttct	caaaagatat	tcgtgctatg	ctgggattct	1020
atcctggaat	ttattggaga	gtctgctgga	cgtgttctcc	ggtttttata	agtgtgat	1080
tcattatgac	tgtctacaat	agttcgttca	agccaattca	aatggctagc	tacactttcc	1140
cctgggtggag	tggtattttg	ggttgggtcc	tgagacttct	ctcagtcctc	gcaattcctg	1200
tcttcgcaat	aatctacctg	ctcagcggtg	ccggcacact	ttacgaacgc	ttccgatggg	1260
caataaactcc	tcaacaacgc	cgaaattcgg	cgacttctct	cgccgctgat	cccacacaaa	1320
ttatcgatag	ttctctttta	gatccaattc	atacacttac	tccagtttag		1370

<210> 5
 <211> 671
 <212> PRT
 <213> Caenorhabditis elegans

<400> 5

Met	Leu	Arg	Trp	His	Ser	Val	Arg	Arg	Lys	Gln	His	Gln	Gln	Leu	Gln
1				5					10					15	
Ala	Glu	Leu	Ser	Ser	Gly	Ala	Ala	Ser	Met	Leu	Ser	Ala	Pro	Glu	Ser
			20					25					30		
Arg	Arg	Val	Ser	Arg	Ser	Met	Ser	Val	Lys	Ala	Pro	Thr	Ala	Ser	Glu
		35					40					45			
Tyr	Met	Pro	Leu	Ser	Val	Ala	Asp	Lys	Pro	Leu	Thr	Leu	Thr	Val	Ser
	50					55					60				
Thr	Ser	His	Ser	Ile	Asp	Pro	Asn	Glu	Pro	Ile	Ala	Ala	Leu	Gly	Gly
65				70						75				80	
Leu	Thr	Pro	Thr	Lys	Glu	Gly	Arg	Val	Ala	Ala	Leu	Arg	Arg	Arg	Ser
				85					90					95	
Ser	Met	Val	Arg	Asp	Lys	Trp	Ala	Thr	Lys	Met	Glu	Phe	Leu	Leu	Ala
			100				105						110		
Val	Val	Gly	Tyr	Ala	Val	Asp	Leu	Gly	Asn	Ile	Trp	Arg	Phe	Pro	Ser
		115					120					125			
Val	Cys	Tyr	Lys	His	Gly	Gly	Gly	Ala	Phe	Leu	Ile	Pro	Tyr	Phe	Ile
	130				135						140				
Met	Leu	Met	Ile	Gly	Gly	Leu	Pro	Met	Phe	Tyr	Met	Glu	Leu	Val	Leu
145				150						155				160	
Gly	Gln	Phe	His	Arg	Ser	Gly	Cys	Val	Ser	Ile	Trp	Arg	Lys	Val	Cys
			165						170					175	
Pro	Leu	Phe	Arg	Gly	Ile	Gly	Tyr	Gly	Ile	Cys	Cys	Ile	Cys	Thr	Phe
			180				185						190		
Ile	Ala	Ile	Phe	Tyr	Asn	Ala	Ile	Ile	Ala	Gln	Ala	Val	Tyr	Phe	Ala
		195					200					205			
Ile	Val	Ser	Leu	Ser	Lys	Ile	Trp	Asp	Ser	Glu	Val	Pro	Trp	Ala	Ser
	210				215						220				
Cys	Gly	Asn	Pro	Trp	Asn	Thr	Pro	Arg	Cys	Ser	Asp	Asp	Leu	Asn	Val
225				230					235					240	
Thr	Ile	Ser	Arg	Asn	Gly	Thr	Pro	Leu	Thr	Thr	Pro	Ser	Glu	Glu	Tyr
			245					250					255		
Tyr	Leu	Tyr	Lys	Val	Leu	Glu	Val	Gln	Lys	Ser	Thr	Gly	Phe	Asp	Asp
			260				265						270		
Leu	Gly	Gly	Val	Lys	Thr	Ser	Met	Ala	Val	Cys	Leu	Leu	Ala	Val	Phe
		275					280					285			
Ile	Met	Val	Tyr	Phe	Ala	Leu	Trp	Lys	Gly	Pro	Gln	Ser	Ser	Gly	Lys
	290				295					300					
Ile	Val	Trp	Val	Thr	Ala	Thr	Ala	Pro	Tyr	Ile	Ile	Leu	Ser	Ile	Leu
305				310					315					320	
Leu	Ile	Arg	Gly	Leu	Leu	Pro	Gly	Ala	Lys	Asn	Gly	Leu	Tyr	Tyr	
			325				330						335		
Tyr	Val	Thr	Pro	Asp	Phe	Glu	Lys	Leu	Lys	Asp	Pro	Ala	Val	Trp	Ser
			340				345						350		
Ala	Ala	Ala	Thr	Gln	Ile	Phe	Phe	Ser	Leu	Gly	Pro	Gly	Phe	Gly	Val
		355					360					365			
Leu	Leu	Ala	Leu	Ser	Ser	Tyr	Asn	Asp	Phe	Asn	Asn	Asn	Cys	Tyr	Arg
	370					375				380					
Asp	Ala	Val	Thr	Ile	Ser	Ile	Ile	Asn	Cys	Ala	Thr	Ser	Phe	Phe	Ser
385				390					395					400	
Gly	Cys	Val	Val	Phe	Ser	Thr	Leu	Gly	Tyr	Met	Ser	Leu	Leu	Thr	Asn
			405					410					415		
Lys	Pro	Ile	Asn	Glu	Val	Val	Gly	Glu	His	Asp	Ala	Ser	Leu	Ile	Phe
			420				425						430		
Ile	Val	Tyr	Pro	Gln	Ala	Leu	Ala	Thr	Met	Asp	Tyr	Ser	Cys	Phe	Trp
	435					440						445			
Ser	Phe	Ile	Phe	Phe	Val	Met	Leu	Ile	Thr	Leu	Gly	Ile	Asp	Ser	Thr
	450				455					460					
Phe	Ala	Gly	Ile	Glu	Ala	Phe	Ile	Thr	Gly	Phe	Cys	Asp	Glu	Ser	Arg

465					470					475				480
Phe	Leu	Ser	Lys	Asn	Arg	Lys	Trp	Phe	Val	Leu	Val	Ile	Cys	Ile
				485					490					495
Tyr	Tyr	Phe	Leu	Ser	Phe	Pro	Ala	Ile	Ser	Tyr	Gly	Gly	Gln	Phe
			500					505					510	
Ile	Pro	Phe	Leu	Asp	Glu	Tyr	Gly	Val	Ser	Leu	Ser	Val	Leu	Phe
			515				520					525		
Val	Thr	Cys	Glu	Met	Ile	Ala	Val	Cys	Trp	Phe	Tyr	Gly	Val	Asp
	530					535				540				
Phe	Ser	Lys	Asp	Ile	Arg	Ala	Met	Leu	Gly	Phe	Tyr	Pro	Gly	Ile
545					550					555				560
Trp	Arg	Val	Cys	Trp	Thr	Cys	Ser	Pro	Val	Phe	Ile	Ser	Val	Ile
				565					570					575
Ile	Met	Thr	Val	Tyr	Asn	Ser	Ser	Phe	Lys	Pro	Ile	Gln	Met	Ala
			580					585					590	
Tyr	Thr	Phe	Pro	Trp	Trp	Ser	Val	Ile	Leu	Gly	Trp	Phe	Leu	Arg
		595					600					605		
Leu	Ser	Val	Leu	Ala	Ile	Pro	Val	Phe	Ala	Ile	Ile	Tyr	Leu	Leu
	610					615					620			
Gly	Thr	Gly	Thr	Leu	Tyr	Glu	Arg	Phe	Arg	Trp	Ala	Ile	Thr	Pro
625					630					635				640
Gln	Arg	Arg	Asn	Ser	Ala	Thr	Ser	Leu	Ala	Ala	Asp	Pro	Thr	Gln
			645						650					655
Ile	Asp	Ser	Ser	Leu	Leu	Asp	Pro	Ile	His	Thr	Leu	Thr	Pro	Val
			660					665					670	

<210> 6
 <211> 224
 <212> PRT
 <213> Caenorhabditis elegans

<400> 6

Met	Leu	Arg	Trp	His	Ser	Val	Arg	Arg	Lys	Gln	His	Gln	Gln	Leu	Gln
1				5					10					15	
Ala	Glu	Leu	Ser	Ser	Gly	Ala	Ala	Ser	Met	Leu	Ser	Ala	Pro	Glu	Ser
			20					25					30		
Arg	Arg	Val	Ser	Arg	Ser	Met	Ser	Val	Lys	Ala	Pro	Thr	Ala	Ser	Glu
		35				40						45			
Tyr	Met	Pro	Leu	Ser	Val	Ala	Asp	Lys	Pro	Leu	Thr	Leu	Thr	Val	Ser
	50					55					60				
Thr	Ser	His	Ser	Ile	Asp	Pro	Asn	Glu	Pro	Ile	Ala	Ala	Leu	Gly	Gly
65				70						75				80	
Leu	Thr	Pro	Thr	Lys	Glu	Gly	Arg	Val	Ala	Ala	Leu	Arg	Arg	Arg	Ser
				85					90					95	
Ser	Met	Val	Arg	Asp	Lys	Trp	Ala	Thr	Lys	Met	Glu	Phe	Leu	Leu	Ala
		100					105					110			
Val	Val	Gly	Tyr	Ala	Val	Asp	Leu	Gly	Asn	Ile	Trp	Arg	Phe	Pro	Ser
		115					120					125			
Val	Cys	Tyr	Lys	His	Gly	Gly	Leu	Pro	Phe	Leu	Ile	Pro	Tyr	Phe	Ile
	130				135						140				
Met	Leu	Met	Ile	Gly	Gly	Leu	Pro	Met	Phe	Tyr	Met	Glu	Leu	Val	Leu
145				150						155				160	
Gly	Gln	Phe	His	Arg	Ser	Gly	Cys	Val	Ser	Ile	Trp	Arg	Lys	Val	Cys
			165						170					175	
Pro	Leu	Phe	Arg	Gly	Ile	Gly	Tyr	Gly	Ile	Cys	Cys	Ile	Cys	Thr	Phe
		180					185					190			
Ile	Ala	Ile	Phe	Tyr	Asn	Ala	Ile	Ile	Ala	Gln	Ala	Val	Tyr	Phe	Ala
		195				200						205			

Ile Val Ser Leu Ser Lys Ile Trp Asp Ser Glu Val Pro Trp Ala Ser
 210 215 220

<210> 7
 <211> 671
 <212> PRT
 <213> Caenorhabditis elegans

<400> 7
 Met Leu Arg Trp His Ser Val Arg Arg Lys Gln His Gln Gln Leu Gln
 1 5 10 15
 Ala Glu Leu Ser Ser Gly Ala Ala Ser Met Leu Ser Ala Pro Glu Ser
 20 25 30
 Arg Arg Val Ser Arg Ser Met Ser Val Lys Ala Pro Thr Ala Ser Glu
 35 40 45
 Tyr Met Pro Leu Ser Val Ala Asp Lys Pro Leu Thr Leu Thr Val Ser
 50 55 60
 Thr Ser His Ser Ile Asp Pro Asn Glu Pro Ile Ala Ala Leu Gly Gly
 65 70 75 80
 Leu Thr Pro Thr Lys Glu Gly Arg Val Ala Ala Leu Arg Arg Arg Ser
 85 90 95
 Ser Met Val Arg Asp Lys Trp Ala Thr Lys Met Glu Phe Leu Leu Ala
 100 105 110
 Val Val Gly Tyr Ala Val Asp Leu Gly Asn Ile Trp Arg Phe Pro Ser
 115 120 125
 Val Cys Tyr Lys His Gly Gly Gly Ala Phe Leu Ile Pro Tyr Phe Ile
 130 135 140
 Met Leu Met Ile Gly Gly Leu Pro Met Phe Tyr Met Glu Leu Val Leu
 145 150 155 160
 Gly Gln Phe His Arg Ser Gly Cys Val Ser Ile Trp Arg Lys Val Cys
 165 170 175
 Pro Leu Phe Arg Gly Ile Gly Tyr Gly Ile Cys Cys Ile Cys Thr Phe
 180 185 190
 Ile Ala Ile Phe Tyr Asn Ala Ile Ile Ala Gln Ala Val Tyr Phe Ala
 195 200 205
 Ile Val Ser Leu Ser Lys Ile Trp Asp Ser Glu Val Pro Trp Ala Ser
 210 215 220
 Cys Gly Asn Pro Trp Asn Thr Pro Arg Cys Ser Asp Asp Leu Asn Val
 225 230 235 240
 Thr Ile Ser Arg Asn Gly Thr Pro Leu Thr Thr Pro Ser Glu Glu Tyr
 245 250 255
 Tyr Leu Tyr Lys Val Leu Glu Val Gln Lys Ser Thr Gly Phe Asp Asp
 260 265 270
 Leu Gly Gly Val Lys Thr Ser Met Ala Val Cys Leu Leu Ala Val Phe
 275 280 285
 Ile Met Val Tyr Phe Ala Leu Trp Lys Gly Pro Gln Ser Ser Gly Lys
 290 295 300
 Ile Val Trp Val Thr Ala Thr Ala Pro Tyr Ile Ile Leu Ser Ile Leu
 305 310 315 320
 Leu Ile Arg Gly Leu Leu Leu Pro Gly Ala Lys Asn Gly Leu Tyr Tyr
 325 330 335
 Tyr Val Thr Pro Asp Phe Glu Lys Leu Lys Asp Pro Ala Val Trp Ser
 340 345 350
 Ala Ala Ala Thr Gln Ile Phe Phe Ser Leu Gly Pro Gly Phe Gly Val
 355 360 365
 Leu Leu Ala Leu Ser Ser Tyr Asn Asp Phe Asn Asn Cys Tyr Arg
 370 375 380
 Asp Ala Val Thr Ile Ser Ile Ile Asn Cys Ala Thr Ser Phe Phe Ser

0943304360

385					390					395					400
Gly	Cys	Val	Val	Phe	Ser	Thr	Leu	Gly	Tyr	Met	Ser	Leu	Leu	Thr	Asn
				405					410					415	
Lys	Pro	Ile	Asn	Glu	Val	Val	Gly	Glu	His	Asp	Ala	Ser	Leu	Ile	Phe
			420					425					430		
Ile	Val	Tyr	Pro	Gln	Ala	Leu	Ala	Thr	Met	Asp	Tyr	Ser	Cys	Phe	Trp
		435					440					445			
Ser	Phe	Ile	Phe	Phe	Val	Met	Leu	Ile	Thr	Leu	Gly	Ile	Asp	Ser	Thr
	450					455					460				
Phe	Ala	Gly	Ile	Glu	Ala	Phe	Ile	Thr	Gly	Phe	Cys	Asp	Glu	Ser	Arg
465					470					475					480
Phe	Leu	Ser	Lys	Asn	Arg	Lys	Trp	Phe	Val	Leu	Val	Ile	Cys	Ile	Ile
			485					490						495	
Tyr	Tyr	Phe	Leu	Ser	Phe	Pro	Ala	Ile	Ser	Tyr	Gly	Gly	Gln	Phe	Val
			500					505					510		
Ile	Pro	Phe	Leu	Asp	Glu	Tyr	Gly	Val	Ser	Leu	Ser	Val	Leu	Phe	Ile
		515					520					525			
Val	Thr	Cys	Glu	Met	Ile	Ala	Val	Cys	Trp	Phe	Tyr	Gly	Val	Asp	Gln
	530					535					540				
Phe	Ser	Lys	Asp	Ile	Arg	Ala	Met	Leu	Gly	Phe	Tyr	Pro	Gly	Ile	Tyr
545					550					555					560
Trp	Arg	Val	Cys	Trp	Thr	Cys	Ser	Ser	Val	Phe	Ile	Ser	Val	Ile	Phe
			565					570						575	
Ile	Met	Thr	Val	Tyr	Asn	Ser	Ser	Phe	Lys	Pro	Ile	Gln	Met	Ala	Ser
			580					585					590		
Tyr	Thr	Phe	Pro	Trp	Trp	Ser	Val	Ile	Leu	Gly	Trp	Phe	Leu	Arg	Leu
		595					600					605			
Leu	Ser	Val	Leu	Ala	Ile	Pro	Val	Phe	Ala	Ile	Ile	Tyr	Leu	Leu	Ser
		610				615					620				
Gly	Thr	Gly	Thr	Leu	Tyr	Glu	Arg	Phe	Arg	Trp	Ala	Ile	Thr	Pro	Gln
625					630					635					640
Gln	Arg	Arg	Asn	Ser	Ala	Thr	Ser	Leu	Ala	Ala	Asp	Pro	Thr	Gln	Ile
			645					650						655	
Ile	Asp	Ser	Ser	Leu	Leu	Asp	Pro	Ile	His	Thr	Leu	Thr	Pro	Val	
			660					665					670		

<210> 8
 <211> 60
 <212> PRT
 <213> Caenorhabditis elegans

<400> 8
 Met Leu Arg Trp His Ser Val Arg Arg Lys Gln His Gln Gln Leu Gln
 1 5 10 15
 Ala Glu Leu Ser Ser Gly Ala Ala Ser Met Leu Ser Ala Pro Glu Ser
 20 25 30
 Arg Arg Val Ser Arg Ser Met Ser Val Lys Asp Thr Lys Ser Leu Lys
 35 40 45
 Phe Lys Asn Gln Gln Asp Ser Met Ile Leu Glu Val
 50 55 60

<210> 9
 <211> 421
 <212> PRT
 <213> Caenorhabditis elegans

<400> 9

Met	Leu	Arg	Trp	His	Ser	Val	Arg	Arg	Lys	Gln	His	Gln	Gln	Leu	Gln
1				5					10					15	
Ala	Glu	Leu	Ser	Ser	Gly	Ala	Ala	Ser	Met	Leu	Ser	Ala	Pro	Glu	Ser
			20					25					30		
Arg	Arg	Val	Ser	Arg	Ser	Met	Ser	Val	Lys	Ala	Pro	Thr	Ala	Ser	Glu
		35					40					45			
Tyr	Met	Pro	Leu	Ser	Val	Ala	Asp	Lys	Pro	Leu	Thr	Leu	Thr	Val	Ser
	50					55					60				
Thr	Ser	His	Ser	Ile	Asp	Pro	Asn	Glu	Pro	Ile	Ala	Ala	Leu	Gly	Gly
65					70					75				80	
Leu	Thr	Pro	Thr	Lys	Glu	Gly	Arg	Val	Ala	Ala	Leu	Arg	Arg	Arg	Ser
				85					90					95	
Ser	Met	Val	Arg	Asp	Lys	Trp	Ala	Thr	Lys	Met	Glu	Phe	Leu	Leu	Ala
			100				105						110		
Val	Val	Gly	Tyr	Ala	Val	Asp	Leu	Gly	Asn	Ile	Trp	Arg	Phe	Pro	Ser
		115					120					125			
Val	Cys	Tyr	Lys	His	Gly	Gly	Gly	Ala	Phe	Leu	Ile	Pro	Tyr	Phe	Ile
	130					135					140				
Met	Leu	Met	Ile	Gly	Gly	Leu	Pro	Met	Phe	Tyr	Met	Glu	Leu	Val	Leu
145					150					155					160
Gly	Gln	Phe	His	Arg	Ser	Gly	Cys	Val	Ser	Ile	Trp	Arg	Lys	Val	Cys
				165					170					175	
Pro	Leu	Phe	Arg	Gly	Ile	Gly	Tyr	Gly	Ile	Cys	Cys	Ile	Cys	Thr	Phe
			180					185					190		
Ile	Ala	Ile	Phe	Tyr	Asn	Ala	Ile	Ile	Ala	Gln	Ala	Val	Tyr	Phe	Ala
		195					200					205			
Ile	Val	Ser	Leu	Ser	Lys	Ile	Trp	Asp	Ser	Glu	Val	Pro	Trp	Ala	Ser
	210					215					220				
Cys	Gly	Asn	Pro	Trp	Asn	Thr	Pro	Arg	Cys	Ser	Asp	Asp	Leu	Asn	Val
225					230					235					240
Thr	Ile	Ser	Arg	Asn	Gly	Thr	Pro	Leu	Thr	Thr	Pro	Ser	Glu	Glu	Tyr
				245					250					255	
Tyr	Leu	Tyr	Lys	Val	Leu	Glu	Val	Gln	Lys	Ser	Thr	Gly	Phe	Asp	Asp
			260					265					270		
Leu	Gly	Gly	Val	Lys	Thr	Ser	Met	Ala	Val	Cys	Leu	Leu	Ala	Val	Phe
		275					280					285			
Ile	Met	Val	Tyr	Phe	Ala	Leu	Trp	Lys	Gly	Pro	Gln	Ser	Ser	Gly	Lys
	290					295					300				
Ile	Val	Trp	Val	Thr	Ala	Thr	Ala	Pro	Tyr	Ile	Ile	Leu	Ser	Ile	Leu
305					310					315					320
Leu	Ile	Arg	Gly	Leu	Leu	Pro	Gly	Ala	Lys	Asn	Gly	Leu	Tyr	Tyr	
				325				330					335		
Tyr	Val	Thr	Pro	Asp	Phe	Glu	Lys	Leu	Lys	Asp	Pro	Ala	Val	Trp	Ser
			340					345					350		
Ala	Ala	Ala	Thr	Gln	Ile	Phe	Phe	Ser	Leu	Gly	Pro	Gly	Phe	Gly	Val
			355				360					365			
Leu	Leu	Ala	Leu	Ser	Ser	Tyr	Asn	Asp	Phe	Asn	Asn	Asn	Cys	Tyr	Arg
	370					375					380				
Asp	Ala	Val	Thr	Ile	Ser	Ile	Ile	Asn	Cys	Ala	Thr	Ser	Phe	Phe	Ser
385					390					395					400
Gly	Cys	Val	Val	Phe	Ser	Thr	Leu	Gly	Tyr	Met	Ser	Leu	Leu	Thr	Asn
				405					410					415	
Lys	Pro	Ile	Asn	Glu											
			420												

<210> 10
 <211> 630
 <212> PRT

<213> Homo sapiens

<400> 10

Met	Glu	Thr	Thr	Pro	Leu	Asn	Ser	Gln	Lys	Gln	Leu	Ser	Ala	Cys	Glu
1				5					10					15	
Asp	Gly	Glu	Asp	Cys	Gln	Glu	Asn	Gly	Val	Leu	Gln	Lys	Val	Val	Pro
			20					25					30		
Thr	Pro	Gly	Asp	Lys	Val	Glu	Ser	Gly	Gln	Ile	Ser	Asn	Gly	Tyr	Ser
		35					40					45			
Ala	Val	Pro	Ser	Pro	Gly	Ala	Gly	Asp	Asp	Thr	Arg	His	Ser	Ile	Pro
	50					55					60				
Ala	Thr	Thr	Thr	Thr	Leu	Val	Ala	Glu	Leu	His	Gln	Gly	Glu	Arg	Glu
65					70					75					80
Thr	Trp	Gly	Lys	Lys	Val	Asp	Phe	Leu	Leu	Ser	Val	Ile	Gly	Tyr	Ala
			85						90					95	
Val	Asp	Leu	Gly	Asn	Val	Trp	Arg	Phe	Pro	Tyr	Ile	Cys	Tyr	Gln	Asn
		100						105					110		
Gly	Gly	Gly	Ala	Phe	Leu	Leu	Pro	Tyr	Thr	Ile	Met	Ala	Ile	Phe	Gly
		115					120					125			
Gly	Ile	Pro	Leu	Phe	Tyr	Met	Glu	Leu	Ala	Leu	Gly	Gln	Tyr	His	Arg
	130					135					140				
Asn	Gly	Cys	Ile	Ser	Ile	Trp	Arg	Lys	Ile	Cys	Pro	Ile	Phe	Lys	Gly
145					150					155					160
Ile	Gly	Tyr	Ala	Ile	Cys	Ile	Ile	Ala	Phe	Tyr	Ile	Ala	Ser	Tyr	Tyr
			165						170					175	
Asn	Thr	Ile	Met	Ala	Trp	Ala	Leu	Tyr	Tyr	Leu	Ile	Ser	Ser	Phe	Thr
		180						185					190		
Asp	Gln	Leu	Pro	Trp	Thr	Ser	Cys	Lys	Asn	Ser	Trp	Asn	Thr	Gly	Asn
		195					200					205			
Cys	Thr	Asn	Tyr	Phe	Ser	Glu	Asp	Asn	Ile	Thr	Trp	Thr	Leu	His	Ser
	210				215						220				
Thr	Ser	Pro	Ala	Glu	Glu	Phe	Tyr	Thr	Arg	His	Val	Leu	Gln	Ile	His
225					230					235					240
Arg	Ser	Lys	Gly	Leu	Gln	Asp	Leu	Gly	Gly	Ile	Ser	Trp	Gln	Leu	Ala
			245						250					255	
Leu	Cys	Ile	Met	Leu	Ile	Phe	Thr	Val	Ile	Tyr	Phe	Ser	Ile	Trp	Lys
		260						265					270		
Gly	Val	Lys	Thr	Ser	Gly	Lys	Val	Val	Trp	Val	Thr	Ala	Thr	Phe	Pro
		275					280					285			
Tyr	Ile	Ile	Leu	Ser	Val	Leu	Leu	Val	Arg	Gly	Ala	Thr	Leu	Pro	Gly
	290				295						300				
Ala	Trp	Arg	Gly	Val	Leu	Phe	Tyr	Leu	Lys	Pro	Asn	Trp	Gln	Lys	Leu
305					310					315					320
Leu	Glu	Thr	Gly	Val	Trp	Ile	Asp	Ala	Ala	Ala	Gln	Ile	Phe	Phe	Ser
			325						330					335	
Leu	Gly	Pro	Gly	Phe	Gly	Val	Leu	Leu	Ala	Phe	Ala	Ser	Tyr	Asn	Lys
			340					345					350		
Phe	Asn	Asn	Asn	Cys	Tyr	Gln	Asp	Ala	Leu	Val	Thr	Ser	Val	Val	Asn
		355					360					365			
Cys	Met	Thr	Ser	Phe	Val	Ser	Gly	Phe	Val	Ile	Phe	Thr	Val	Leu	Gly
	370					375					380				
Tyr	Met	Ala	Glu	Met	Arg	Asn	Glu	Asp	Val	Ser	Glu	Val	Ala	Lys	Asp
385					390					395					400
Ala	Gly	Pro	Ser	Leu	Leu	Phe	Ile	Thr	Tyr	Ala	Glu	Ala	Ile	Ala	Asn
			405						410					415	
Met	Pro	Ala	Ser	Thr	Phe	Phe	Ala	Ile	Ile	Phe	Phe	Leu	Met	Leu	Ile
			420					425					430		
Thr	Leu	Gly	Leu	Asp	Ser	Thr	Phe	Ala	Gly	Leu	Glu	Gly	Val	Ile	Thr
		435					440						445		

09843598.042601

Ala	Val	Leu	Asp	Glu	Phe	Pro	His	Val	Trp	Ala	Lys	Arg	Arg	Glu	Arg
450						455					460				
Phe	Val	Leu	Ala	Val	Val	Ile	Thr	Cys	Phe	Phe	Gly	Ser	Leu	Val	Thr
465					470					475					480
Leu	Thr	Phe	Gly	Gly	Ala	Tyr	Val	Val	Lys	Leu	Leu	Glu	Glu	Tyr	Ala
				485					490					495	
Thr	Gly	Pro	Ala	Val	Leu	Thr	Val	Ala	Leu	Ile	Glu	Ala	Val	Ala	Val
			500					505					510		
Ser	Trp	Phe	Tyr	Gly	Ile	Thr	Gln	Phe	Cys	Arg	Asp	Val	Lys	Glu	Met
		515					520					525			
Leu	Gly	Phe	Ser	Pro	Gly	Trp	Phe	Trp	Arg	Ile	Cys	Trp	Val	Ala	Ile
	530					535					540				
Ser	Pro	Leu	Phe	Leu	Leu	Phe	Ile	Ile	Cys	Ser	Phe	Leu	Met	Ser	Pro
545					550					555					560
Pro	Gln	Leu	Arg	Leu	Phe	Gln	Tyr	Asn	Tyr	Pro	Tyr	Trp	Ser	Ile	Ile
				565					570					575	
Leu	Gly	Tyr	Cys	Ile	Gly	Thr	Ser	Ser	Phe	Ile	Cys	Ile	Pro	Thr	Tyr
			580					585					590		
Ile	Ala	Tyr	Arg	Leu	Ile	Ile	Thr	Pro	Gly	Thr	Phe	Lys	Glu	Arg	Ile
		595					600					605			
Ile	Lys	Ser	Ile	Thr	Pro	Glu	Thr	Pro	Thr	Glu	Ile	Pro	Cys	Gly	Asp
610						615					620				
Ile	Arg	Leu	Asn	Ala	Val										
625					630										

<210> 11
 <211> 622
 <212> PRT
 <213> Drosophila melanogaster

<400> 11

Met	Asp	Arg	Ser	Gly	Ser	Ser	Asp	Phe	Ala	Gly	Ala	Ala	Ala	Thr	Thr
1				5				10						15	
Gly	Arg	Ser	Asn	Pro	Ala	Pro	Trp	Ser	Asp	Asp	Lys	Glu	Ser	Pro	Asn
			20					25					30		
Asn	Glu	Asp	Asp	Ser	Asn	Glu	Asp	Asp	Gly	Asp	His	Thr	Thr	Pro	Ala
		35				40					45				
Lys	Val	Thr	Asp	Pro	Leu	Ala	Pro	Lys	Leu	Ala	Asn	Asn	Glu	Arg	Ile
	50					55					60				
Leu	Val	Val	Ser	Val	Thr	Glu	Arg	Thr	Arg	Glu	Thr	Trp	Gly	Gln	Lys
65					70					75				80	
Ala	Glu	Phe	Leu	Leu	Ala	Val	Ile	Gly	Phe	Ala	Val	Asp	Leu	Gly	Asn
			85					90					95		
Val	Trp	Arg	Phe	Pro	Tyr	Ile	Cys	Tyr	Gln	Asn	Gly	Gly	Gly	Ala	Phe
		100					105						110		
Leu	Val	Pro	Tyr	Cys	Leu	Phe	Leu	Ile	Phe	Gly	Gly	Leu	Pro	Leu	Phe
	115					120						125			
Tyr	Met	Glu	Leu	Ala	Leu	Gly	Gln	Phe	His	Arg	Cys	Gly	Cys	Leu	Ser
	130					135					140				
Ile	Trp	Lys	Arg	Ile	Cys	Pro	Ala	Leu	Lys	Gly	Val	Gly	Tyr	Ala	Ile
145					150					155					160
Cys	Leu	Ile	Asp	Ile	Tyr	Met	Gly	Met	Tyr	Tyr	Asn	Thr	Ile	Ile	Gly
			165						170					175	
Trp	Ala	Val	Tyr	Tyr	Leu	Phe	Ala	Ser	Phe	Thr	Ser	Lys	Leu	Pro	Trp
		180					185						190		
Thr	Ser	Cys	Asp	Asn	Pro	Trp	Asn	Thr	Glu	Asn	Cys	Met	Gln	Val	Thr
		195					200					205			
Ser	Glu	Asn	Phe	Thr	Glu	Leu	Ala	Thr	Ser	Pro	Ala	Lys	Glu	Phe	Phe

00043593-042601

210	Glu Arg Lys Val Leu	215	Glu Ser Tyr Lys Gly	220	Asn Gly Leu Asp Phe Met
225	Gly Pro Val Lys Pro	230	Thr Leu Ala Leu Cys	235	Val Phe Gly Val Phe Val
	245		250		255
Leu Val Tyr Phe	Ser Leu Trp Lys	Gly Val Arg Ser	Ala Gly Lys Val		
	260		265		270
Val Trp Val Thr	Ala Leu Ala Pro	Tyr Val Val Leu	Ile Ile Leu Leu		
	275		280		285
Val Arg Gly Val	Ser Leu Pro Gly	Ala Asp Glu Gly	Ile Lys Tyr Tyr		
	290		295		300
Leu Thr Pro Glu	Trp His Lys	Leu Lys Asn Ser	Lys Val Trp Ile Asp		
305		310		315	320
Ala Ala Ser Gln	Ile Phe Phe Ser	Leu Gly Pro Gly	Phe Gly Thr Leu		
	325		330		335
Leu Ala Leu Ser	Ser Tyr Asn Lys	Phe Asn Asn Asn	Cys Tyr Arg Asp		
	340		345		350
Ala Leu Ile Thr	Ser Ser Ile Asn	Cys Leu Thr Ser	Phe Leu Ala Gly		
	355		360		365
Phe Val Ile Phe	Ser Val Leu Gly	Tyr Met Ala Tyr	Val Gln Lys Thr		
	370		375		380
Ser Ile Asp Lys	Val Gly Leu Glu	Gly Pro Gly Leu	Val Phe Ile Val		
385		390		395	400
Tyr Pro Glu Ala	Ile Ala Thr Met	Ser Gly Ser Val	Phe Trp Ser Ile		
	405		410		415
Ile Phe Phe Leu	Met Leu Ile Thr	Leu Gly Leu Asp	Ser Thr Phe Gly		
	420		425		430
Gly Leu Glu Ala	Met Ile Thr Ala	Leu Cys Asp Glu	Tyr Pro Arg Val		
	435		440		445
Ile Gly Arg Arg	Arg Glu Leu Phe	Val Leu Leu Leu	Leu Ala Phe Ile		
	450		455		460
Phe Leu Cys Ala	Leu Pro Thr Met	Thr Tyr Gly Gly	Val Val Leu Val		
465		470		475	480
Asn Phe Leu Asn	Val Tyr Gly Pro	Gly Leu Ala Ile	Leu Phe Val Val		
	485		490		495
Phe Val Glu Ala	Ala Ala Gly Val	Phe Trp Phe Tyr	Gly Val Asp Arg	Phe	
	500		505		510
Ser Ser Asp Val	Glu Gln Met Leu	Gly Ser Lys Pro	Gly Leu Phe Trp		
	515		520		525
Arg Ile Cys Trp	Thr Tyr Ile Ser	Pro Val Phe Leu	Leu Thr Ile Phe		
	530		535		540
Ile Phe Ser Ile	Met Gly Tyr Lys	Glu Met Leu Gly	Glu Glu Tyr Tyr		
545		550		555	560
Tyr Pro Asp Trp	Ser Tyr Gln Val	Gly Trp Ala Val	Thr Cys Ser Ser		
	565		570		575
Val Leu Cys Ile	Pro Met Tyr Ile	Ile Tyr Lys Phe	Phe Phe Ala Ser		
	580		585		590
Lys Gly Gly Cys	Arg Gln Arg Leu	Gln Glu Ser Phe	Gln Pro Glu Asp		
	595		600		605
Asn Cys Gly Ser	Val Val Pro Gly	Gln Gln Gly Thr	Ser Val		
610		615		620	